Solution

a. 12,530 is divisible by 10 since the ones digit is 0.

b. 841 is not divisible by 10 since the ones digit is not 0.

Now work margin exercise 7.

8. Is 612 divisible by 9? Explain why or why not.

Completion Example 8 Using the Divisibility Rules

Complete each sentence.

a. 250 is divisible by 10 since _____

b. 5712 is divisible by 4 since _____

_____

c. 5402 is not divisible by 3 since _____

d. 6036 is divisible by 6 since _____

_____

_____

Now work margin exercise 8.

Completion Example Answer

8. a. the ones digit is 0 **b.** the number formed by the last 2 digits (12) is divisible by 4 **c.** 5 + 4 + 0 + 2 = 11, and 11 is not divisible by 3 **d.** 6036 is divisible by both 2 and 3 (It is divisible by 2 since the ones digit is 6 and it is divisible by 3 since 6 + 0 + 3 + 6 = 15, and 15 is divisible by 3.)

Margin Exercise Answers

1. Yes, the ones digit is 8, an even digit. **2.** No, 7 + 9 + 1 + 2 = 19, and 19 is not divisible by 3. **3.** Yes, 76 is divisible by 4. **4.** No, the ones digit is not 0 or 5. **5.** No, 1 + 5 + 7 + 6 = 19, and 19 is not divisible by 3. **6.** Yes, 4 + 6 + 5 + 3 = 18, and 18 is divisible by 9. **7.** Yes, the ones digit is 0. **8.** Yes, 6 + 1 + 2 = 9, and 9 is divisible by 9.

1.8 Exercises

Concept Check

Fill-in-the-Blank. Complete each sentence using information found in this section.

1. A number is divisible by 5 if the last digit is a/an _____ or a/an _____.

2. A number is divisible by 9 if the sum of the digits is divisible by _____.

3. A number is divisible by 4 is the number formed by the last two digits is divisible by _____.

4. A number is divisible by 6 if the number is divisible by both ____ and _____.

5. Every even whole number is divisible by _____.

6. A number divisible by 10 has ____ as its ones digit.

True/False. Determine whether each statement is true or false. If a statement is false, explain how it can be changed so the statement will be true. (**Note:** There may be more than one acceptable change.)

7. A number that is divisible by 10 is also divisible by 2 and 5.

8. 6801 is divisible by 9.

9. 7605 is divisible by 10.

10. 5,187,042 is divisible by 3.

Practice

Using the tests for divisibility, determine which of 2, 3, 4, 5, 6, 9, and 10 (if any) will divide exactly into each given number. See Examples 1 through 8.

1. 105
2. 81
3. 72
4. 150
5. 471
6. 154
7. 333
8. 664
9. 375
10. 567
11. 443
12. 173
13. 571
14. 331
15. 480
16. 510
17. 370
18. 402
19. 777
20. 897
21. 466
22. 695
23. 795
24. 885
25. 732
26. 888
27. 441
28. 555
29. 705
30. 549
31. 576
32. 792
33. 1234
34. 8765
35. 4321
36. 4391
37. 9000
38. 5700
39. 8805
40. 1155
41. 4422
42. 5476
43. 45,000
44. 10,000
45. 12,324
46. 75,495

For each set of numbers, make up any four 3-digit numbers that you can think of that are divisible by all of the given numbers. (There are many possible answers.)

47. 2 and 3
48. 2 and 9
49. 2, 3, and 10
50. 2, 5, and 9
51. 5 and 6
52. 3 and 4

Applications

Solve.

53. A school district raises $10,125 in scholarship money for local students. The school board wants to split the money evenly between multiple students. The board is considering splitting the money between 3, 4, 6, or 9 students. Which of the options would allow the money to be split evenly among the students? How much money would each student receive for each group size that allows the money to be split evenly?

54. You are on a team that is participating in a charity walk with a goal to raise $12,400. Each team member agrees to raise the same amount of money. If the possible team sizes are 5, 6, 9, or 10 members, which team sizes allow the goal amount to be evenly split between the team members? How much money would each team member raise for each team size that can evenly split the goal amount?

55. A company is working on a project that will take 440 hours of work to complete. The manager in charge of the project has the option to have 4, 6, or 8 people work on the project. If the manager wants to evenly divide the work between the team members, which team size will evenly split the work hours? How many hours would each team member spend on the project for each team size that evenly splits the work hours?

56. Marc is moving from Charleston, SC, to Houston, TX, which is a distance of approximately 1060 miles. He plans to sightsee along the way while driving the same number of miles each day. Marc wants to make the trip in 2, 3, 4, or 5 days. Which trip length would split the miles traveled evenly between all of the days? How many miles would Marc need to drive each day for each option that evenly splits the trip length?

Writing & Thinking

57. **a.** If a number is divisible by both 3 and 5, then it will be divisible by 15. Give two examples.

b. However, a number might be divisible by 3 and not by 5. Give two examples.

c. Also, a number might be divisible by 5 and not 3. Give two examples.

58. Explain, in your own words, why a number ending in 0 is divisible by 2 and 5.

59. Create a 5 digit number that is divisible by 3, 5, 9, and 10. Explain how this number meets each of the tests for divisibility.

60. A digit is missing in the number $7\square,488$

a. Explain the process that you would use to find all possible values of the missing digit that would make the resulting number divisible by 3.

b. Use the process from part a. to find all values for the missing digit so that the number will be divisible by 3. Keep in mind that there may be one value, several values, or no value that makes the number divisible by 3.

61. Think about the rules for divisibility and explain why the following statement is true: "A number may be divisible by 5 and not divisible by 10." Give two examples to illustrate your point.

62. If a number is divisible by both 2 and 4, must it also be divisible by 8? Explain your reasoning and give two examples to support your reasoning.